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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/874,253	06/06/2001	Shingo Nozawa	35:G2825	5954
5514	7590	04/13/2006	EXAMINER	
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DATE MAILED: 04/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/874,253

Applicant(s)

NOZAWA, SHINGO

Examiner

Nhan T. Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20, 26-29 and 31-34 is/are pending in the application.
- 4a) Of the above claim(s) 8-13, 18, 26, 28 and 32 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 34 is/are allowed.
- 6) ☒ Claim(s) 1-7, 14-17, 19, 20, 27, 29, 31 and 33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed 2/2/2006 with respect to claims 1-7, 14-17, 19-20, 27, 31, 33 & 34 have been fully considered but the arguments for claims 1-7, 14-17, 19-20, 27, 31, 33 are not persuasive.

The Applicant asserts:

(i) Kowno fails to disclose or suggest, generating, by capturing an image of a subject, an image signal corresponding to an image having an arbitrary number of H pixels by W pixels which is not greater than a predetermined number of P pixels by Q pixels in vertical and horizontal directions. **Instead, Kowno discloses creation of an enlarged image, such as shown in FIG. 9, by changing the focal length of a shooting lens in a camera.** (Remarks, page 17).

(ii) Kowno fails to disclose or suggest generating a reduced image signal corresponding to a reduced image having a predetermined number of M pixels by N pixels by performing reduction processing on the enlarged image signal corresponding to the enlarged image having the number of P pixels by Q pixels. Instead, Kowno discloses the use of thumbnail images, such as shown in the user interface of Fig. 7. **These thumbnail images are generated by reducing the image data stored in memory card 24 and nothing more. Kowno fails to disclose or suggest that a thumbnail image is generated by reducing an enlarged image as featured in Claim 1.** (Remarks, page 17).

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(iii) Kowno fails to disclose or suggest generating an image signal corresponding to an arbitrary image size equal to or smaller than a first predetermined image size, the generated image signal being converted into an image signal corresponding to a second predetermined size and performing enlargement processing on the image signal so that an image signal corresponding to the first predetermined image size is generated, and performing reduction processing on the image signal generated so that an image signal corresponding to the second predetermined image size is generated. Furthermore, Kowno fails to disclose or suggest recording the image signal corresponding to said second predetermined image size generated by said reducing means on a recording medium. **Instead, Kowno merely discloses enlarging an image using optical means and generating a thumbnail image from an image stored in memory without storing the thumbnail image on a recording medium.** (Remarks, page 18 or 21).

In response, the Examiner respectfully disagrees with the Applicant for corresponding reasons:

(i) Kowno's digital camera sets forth **an electronic zoom function** and an optical zoom function **regardless of whether the image is being provided from the memory means or from the photoelectric conversion means** (see paragraphs [0018]-[0019]). It is noted that the Office Action has been relied upon for the electronic zoom function taught by Kowno, not the optical zoom function. Kowno describes in paragraphs [0020], [0050] & [0157] that image signal provided from the electronic conversion means (CCD 20) is

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**electronically/digitally enlarged by interpolation (inherently known as cropping and expanding)** which is understood as the image signal corresponding to an image having an arbitrary object area (i.e., an object's face as shown in Figs. 8 & 9) having number of H pixels by W pixels which correspond to a **smaller image size or lower resolution** than a full resolution image having a predetermined number of P pixels by Q pixels in vertical and horizontal directions (substantially the same size of the CCD).

(ii) Kowno does teaches generating a reduced image as a thumbnail image (52) having a predetermined number of M pixels by N pixels (set by the camera manufacture as shown in Fig. 7) by performing reduction processing on the enlarged image signal (i.e., the image signal of the object face that is enlarged by cropping and expanding using interpolation by means of electronic or digital zoom as illustrated in Fig. 9 and paragraphs [0019] & [0020] ) having the number of P pixels by Q pixels. It is seen in paragraphs [0080] & [0112] that when the image signal output from the CCD is enlarged in the electronic zoom mode using zoom button 15 (note that this is a live-view enlargement or a digital zoom-in with EVF enabled, not the enlargement during playback), the enlarged image is recorded in the buffer memory 36 or memory card 24 when the user is satisfied with the enlargement ratio (enough close-up). The enlarged image is then thinned to create thumbnail image 52 as described in paragraph [0112].

(iii\*-) the Examiner provides the same analyses of generating an image signal, performing enlargement processing on the image signal and performing reduction processing on the enlarged image signal as discussed in (i) and (ii)

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above, wherein "an arbitrary image size" is the image size of the object to be enlarged or zoomed in (i.e., the object's face), "the first predetermined image size" is the enlarged image of the arbitrary image, and "the second predetermined image size" is the thumbnail image. Furthermore, Kowno discloses that the memory buffer 36 is used to store all images that are currently displayed including the thumbnail images 52 (see paragraphs [0069] & [0070]). Thus, "the recording medium" for storing the thumbnail image is the memory 36.

In view of the above, the Examiner believes that the claims are written broad enough to read on the cited references for at least the reasons discussed above and as stated in the following Office Action.

### ***Claim Objections***

2. Claims 2-7 are objected to because of various recitation of "said enlarging means", "said imaging means" and "said reducing means" which should be corrected as --said enlarging **unit**--, --said imaging **unit**-- and --said reducing **unit**--, respectively, to provide consistent claim terminology with the independent claim 1.

Claim 14 is also objected to because of recitation "an image signal corresponding to a second predetermined size" (line 4 of claim 14) which should be corrected as --an image signal corresponding to a second predetermined **image** size—to provide consistent claim terminology with "said second predetermined image size" recited in line 11 of the claim.

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Claim 34 is objected to because of recitation of "said arbitrary number of H pixels by W pixels" in line 10 of the claim and "the number of M pixels by N pixels" in line 15 of the claim. These limitations should be corrected as --an arbitrary number of H pixels by W pixels-- and --a number of M pixels by N pixels--, respectively.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 16 recites the limitation "said second predetermined image size" in lines 8-9 of claim 16. There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or
- (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under

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the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-3, 6, 7, 14-17, 27, 29, 31 & 33 are rejected under 35

U.S.C. 102(e) as being anticipated by Kowno et al (US 2001/0013897 A1).

Regarding claim 1, Kowno discloses an imaging apparatus (Figs. 1-4) comprising:

an imaging unit (CCD 20; Fig. 4) which generates, by capturing an image of a subject, an image signal corresponding to an image having an arbitrary number of H pixels by W pixels (an arbitrary electronic zoom area, i.e., object's face area as illustrated in Figs. 8 & 9) which is not greater than a predetermined number of P pixels by Q pixels in vertical and horizontal directions (full resolution of the imaging area of CCD; see [0018], [0020], [0050] & [0157]);

an enlarging unit (DSP 33 and/or CPU 39 in combination with buffer memory 36; Fig. 4) which generates an enlarged image signal corresponding to an enlarged image having the number of P pixels by Q pixels (example shown in Fig. 9) by performing enlargement processing (by interpolating) on the image signal having the number of H pixels by W pixels generated by said imaging means (see [0080]); and

a reducing unit (also DSP 33 and/or CPU 39 in combination with buffer memory 36; Fig. 4) which generates a reduced image signal (thumbnail image 52 shown in Fig. 7) corresponding to a reduced image having a predetermined number of M pixels by N pixels (set by the camera manufacture) by performing



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reduction processing on the enlarged image signal corresponding to the enlarged image having the number of P pixels by Q pixels (see [0112]).

Regarding claim 2, Kowno also discloses that the enlarging means sets a magnification used in the enlargement processing on the image signal generated by said imaging means in accordance with the number of H pixels by W pixels (see [0050], [0080] and [0157], wherein magnification ratio is set in accordance with the electronic zoom-in area actuated by the zoom button 15).

Regarding claim 3, it is also clearly seen that reducing means generating reduced image signal (the thumbnail 52) corresponding to the reduced image having the number of M pixels x N pixels by performing reduction processing on the enlarged image signal using a fixed ratio. See [0112], wherein the ratio between thumbnail image 52 shown in Fig. 7 and the enlarged image by the electronic zoom is always constant because these image resolutions are always constant.

Regarding claim 6, Kowno discloses that the imaging means includes an imaging device having the number of P pixels x Q pixels (full resolution image without electronic zoom as shown in Fig. 8), and generates the image signal corresponding to the image having the number of H pixels x W pixels using part of an area of said imaging device (an object area which is usually located at

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center or upper portion using electronic zoom to enlarge the object area as shown in Fig. 9).

Regarding claim 7, as disclosed in [0112] and [0069]-[0070], the reduced image signal (the thumbnail 52) generated by the reducing means is recorded onto a recording medium (i.e., buffer memory 36).

Regarding claim 14, see the analyses of claims 1 & 7, wherein “the arbitrary image size” is the image size of the object to be enlarged or zoomed in (i.e., the object’s face), “the first predetermined image size” is the enlarged image from the arbitrary image (example shown in Fig. 9), and “the second predetermined image size” is the thumbnail image 52 shown in Fig. 7.

Regarding claim 15, Kowno further discloses that said enlarging means performs the enlargement processing (electronic zoom by interpolation) on said image signal generated by said imaging means by using a magnification in accordance with the arbitrary size (depending on how much zoom-in actuated at zoom button 15, see [0050] & [0157]) on said image signal generated by said imaging means; and said reducing means performs the reduction processing on said image signal generated by said enlarging means by using a fixed factor (see the analysis of claim 3).

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Regarding claim 16, see the analysis of claims 1 & 7 for electronic zoom function having variable magnification which depends on the actuated level of the zoom button 15 and recording means (i.e., buffer memory 36) for recording the thumbnail image. See also claim 3 for fixed ratio between the enlarged image and the thumbnail image.

Regarding claim 17, see the analysis of claim 14.

Regarding claim 27, see the analyses of claims 1 & 7.

Regarding claim 29, see the analysis of claim 14.

Regarding claim 31, see the analyses of claims 1 & 7. Further disclosed is an inherent storage medium storing a program (overall control program and JPEG program) for the CPU 39 and DSP 33 to function as described in [0074] – [0085].

Regarding claim 33, see the analyses of claims 14 and 31.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to

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be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4, 5, 19 & 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kowno et al (US 2001/0013897 A1) in view of Suga (US 6,707,467 B1).

Regarding claim 19, Kowno discloses all limitations as analyzed in claims 1 & 7. Furthermore, Kowno teaches that the electronic zoom function is performed using interpolation and/or thinning process (see [0050] & [0157]). However, Kowno is silent about performing cubic convolution interpolation for enlarging the image and finite-impulse-response (FIR) filtering for reducing the enlarged image.

Suga teaches resolution transforming apparatus and method for enlarging and reducing an image using linear or cubic interpolation and FIR filtering process so as to reduce image blur and un-uniformity caused by resolution transforming process (see Suga, col. 3, lines 4-7 and col. 6, line 63 – col. 7, line 8).

Therefore, it would have been obvious to one of ordinary skill in the art to modify the imaging apparatus in Kowno by implementing cubic convolutional interpolation processing on the image signal generated by the imaging means for enlarging the image and performing FIR filtering on the enlarged image signal so that image blur and un-uniformity would be reduced as suggested by Suga.

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Regarding claim 20, see the analysis of claim 19, wherein the linear interpolation is also suggested by Suga for enlarging the image to obtain the same result as the cubic convolutional interpolation (see Suga, col. 3, lines 4-7 and col. 6, line 63 – col. 7, line 8). Therefore, it would have been obvious to one of ordinary skill in the art to implement a linear interpolation process for enlarging the image generated by the imaging means as an alternative process over the cubic convolutional interpolation process without affecting the result in reducing image blur and un-uniformity.

Regarding claims 4 & 5, see the analyses of claims 19 & 20.

### ***Allowable Subject Matter***

6. Claim 34 is allowed.

The following is an examiner's statement of reasons for allowance (*note the minor claim objection to claim 34 set in section 2 above*):

The prior art of record fails to teach or fairly suggest the combination of all limitations required in claim 34 that includes **“an enlarging step for generating a progressive image signal corresponding to a progressive image having the number of P pixels in the vertical direction by performing enlargement processing on said input interlaced image signal corresponding to the image having [said] an arbitrary number of H pixels by W pixels in units of fields; a reducing step for generating an interlaced image signal corresponding to an interlaced image having the number of M pixels by**

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**performing reduction processing on the generated progressive image signal in units of frames; and a recording step for recording the image signal corresponding to the image having [the] a number of M-pixels by N pixels generated in said reduction step on a recording medium."**

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhan T. Tran whose telephone number is

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(571) 272-7371. The examiner can normally be reached on Monday - Thursday,  
7:30am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the  
examiner's supervisor, David Ometz can be reached on (571) 272-7593. The fax  
phone number for the organization where this application or proceeding is  
assigned is 571-273-8300.

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system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-  
free).

NT.

A handwritten signature in black ink, appearing to read 'David Ometz', with a long horizontal flourish extending to the right.

DAVID OMETZ  
SUPERVISORY PATENT EXAMINER